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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/921,602      | 08/06/2001  | Kazuo Okamura        | 100725-00047        | 1879             |

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EXAMINER

COMPTON, ERIC B

ART UNIT PAPER NUMBER

3726

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/921,602

Applicant(s)

OKAMURA ET AL.

Examiner

Eric B. Compton

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-21, 28, 29, 31, 32 and 34-36 is/are pending in the application.
- 4a) Of the above claim(s) 23-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-21, 28, 29, 31, 32 and 34-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/2/04 &amp; 6/2/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 30, 2005, has been entered.

### ***Election/Restrictions***

2. Claims 23-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 17-21, 28-29, 31-32, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2,064,676 to Morgan in view of JP 02-107705 to KIKUCHI.

Morgan discloses a method for forming oil impregnated sintered hydrodynamic bearings having inclined pressure generating grooves (e.g., "herringbone", see claim 2; Figures 6-9,) formed by inserting a forming pattern, a sizing core (26) into the inner peripheral surface of a porous blank to form the pressure generating grooves (see page 5, lines 53-54; Figures 2). Morgan discloses that "springback" (or elastic recovery) occurs when the sizing core is removed (see page 5, lines 35-38). The reference discloses, "Upon removal of the sizing core, those areas which have been subject to the higher stresses spring back more than the areas which have been subjected to the lower stresses." Page 5.

However, the Examiner does not know for certain whether the reference discloses, "removing said compacting pressure so as to utilize the spring-back of porous blank in releasing said forming pattern from the inner peripheral surface of said porous blank." As discussed on Page 24 and shown in Figure 15 of the Specification, this requires raising the core rod (21) in connecting with the hydrodynamic bearing (13) from the die (20). The springback (Q), caused by the previous compressing step, increases the inner diameter of the bearing to facilitate removal from the forming pattern. As Applicant recognizes, "the sintered metal blank 13 cab be extracted form the core rod 21 without breaking the hydrodynamic pressure generating grooves 1c." Specification at page 4.

KIKUCKI discloses a method for forming oil impregnated sintered hydrodynamic bearings having an expanded diameter portion (11a) which is analogous to both Applicant's and Morgan's grooves. The steps shown in Figures 1-2 are nearly identical

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to Applicant's method. As shown in Figure 2(D) once the step of forming the large diameter portion (11a) by a sizing process is completed, the core pin (11) in connecting with the bearing (6) is raised out of the die (15). The reference notes, "*A shaping, diameter-expanding sizing object is pushed out from a die with a sizing core and is extracted by 'springback'.*" Derwent English Abstract (emphasis added). Furthermore, the reference recognizes "Friction is reduced effectively because of the exact sizing of the bearing and mass prodn. with low cost material is enabled." *Id.*

Regarding claims 17-21, 28-29, 31-32, and 34-36, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed the sintered oil bearing of the process of Morgan and removed the compacting pressure so as to utilize the spring-back of porous blank in releasing said forming pattern from the inner peripheral surface of said porous blank, in light of the teachings of KIKUCKI, in order to prevent friction, *i.e.*, contact between the grooves (larger diameter portions) and the forming pattern of the core pin.

The other limitations of the invention are inherently disclosed by Morgan and KIKUCHI.

### ***Prior Art References***

The prior art references listed on the enclosed PTO-892, but not used in a rejection of the claims, are cited for their teachings of forming sintered oil bearings.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Compton whose telephone number is (571) 272-4527. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David p. Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric B. Compton  
Primary Examiner  
Art Unit 3726

ebc